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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,859	11/06/2006	Lutz Rauchfuss	10191/4323	2613
26646 7590 05/01/2009 KENYON & KENYON LLP ONE BROADWAY NEW YORK, NY 10004			EXAMINER WILLIAMS, ARUN C	
			ART UNIT 2838	PAPER NUMBER
			MAIL DATE 05/01/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/552,859

**Applicant(s)**

RAUCHFUSS, LUTZ

**Examiner**

ARUN WILLIAMS

**Art Unit**

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-10, 12, 13, 15, 17, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 11, 14, 16, 18, and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

This is in response to an amendment/response filed on 2/12/2009

No claims have been amended.

No claims have been cancelled.

Claims 18-21 have been newly added.

Hereon, claims 8-21 are currently pending; claims 8-10,12,13,15,17,20, and 21 are rejected. Claim 11,14,16,18, and 19 are objected.

***Response to Arguments***

1. Applicant's arguments with respect to claims 8-17 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Objections***

2. Claims 8,11, and 12 are objected to because of the following informalities:  
Claims 8, 11, and 12 recites, "the basis" without previously defining. Claims 8,9,11, and 12 recites, "defined deviation" it is unclear because the deviation has not been defined. Claim 12 line 11, recites "assuming the first state of charge value" it is unclear if this is the same as "a first state of charge value" on line 4" if so, how can "the first state of charge value" be assumed if it was already determined. For examination purposes "the first state of charge value" will be consider as the same as "a first state of charge value".  
Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 8,9,13, and 15 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Minamiura et al,(Minamiura), (USNO.2003/0052646).**

As for claim 8, Minamiura discloses a method for detecting acid stratification in a battery, comprising: determining a first state of charge value during a load period (ref's when the ignition switch IG of the HEV is turned on) of the battery on the basis of an estimated open-circuit voltage; determining a second state of charge value during a rest period (ref's when the ignition switch IG of the HEV is turned off) of the battery following the load period (implicit) on the basis of a measured open-circuit voltage; comparing the first state of charge value to the second state of charge value; and detecting acid stratification (ref's abnormality) when a defined deviation (ref's difference) of the first state of charge value from the second state of charge value is exceeded.(par.[0057 &0063-0064,0080])

Under the 103 interpretation, where "a rest period of the battery following the

load period" is narrower than just described, assuming that Minamiura does meet that it was well known to one of ordinary skill in the art that a mere reversal of an essential working of a device involves only routine skill in the art.

As for claim 9, Under the 103 interpretation, Minamiura discloses all the limitations in the claimed invention except for the deviation is defined as >20%. It would have been obvious to one having ordinary skill in the art at the time of the invention was made for the deviation is defined as >20% , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As for claims 13 and 15, Under the 103 interpretation, Minamiura discloses all the limitations in the claimed invention except the method is performed in a system for detecting a performance capacity of the battery and the method is performed in an electrical battery management system. However, these limitations are considered as intended use and thus further, having the method is performed in a system for detecting a performance capacity of the battery the method is performed in a system for detecting a performance capacity of the battery doesn't solve any stated problem or is for any particular purpose and it appears that the invention would perform without this intended use.

**6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minamiura in view of Tate, Jr et al,(Tate), (USPATNO.6,441,586).**

As for claim 10, Minamiura discloses all limitations, but differs from the claimed invention because he does not explicitly disclose determining the estimated open-circuit

voltage via an observation device, the observation device including a Kalman filter, the Kalman filter estimating the open-circuit voltage on the basis of a measured battery current using a model describing the battery.

Tate discloses determining the estimated open-circuit voltage (ref's voltage on the terminals) via an observation device, the observation device including a Kalman filter, the Kalman filter estimating the open-circuit voltage on the basis a measured battery current using a model describing the battery.(col.3, lines 58-60 & col.12, lines 17-18)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have modified the teachings of Minamiura by using determining the estimated open-circuit voltage via an observation device, the observation device including a Kalman filter, the Kalman filter estimating the open-circuit voltage on the basis of a measured battery current using a model describing the battery for advantages such as providing the ability to determine the state of charge (col.3, line 35), as taught by Tate.

**7. Claims 12,17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minamiura in view of Kadouchi et al,(Kadouchi), (USNO. 2003/0146737).**

As for claim 12, Minamiura discloses a method for detecting acid stratification in a battery, comprising: determining a first state of charge value during a load period (ref's when the ignition switch IG of the HEV is turned on) of the battery on the basis of an estimated open-circuit voltage; determining a second state of charge value during a rest

period (ref's when the ignition switch IG of the HEV is turned off) of the battery on the basis of a measured open-circuit voltage; comparing the first state of charge value to the second state of charge value; and detecting acid stratification (ref's abnormality) when a defined deviation (ref's difference) of the first state of charge value from the second state of charge value is exceeded (par.[0057 & 0063-0064,0080])

Minamiura discloses all limitations, but differs from the claimed invention because he does not explicitly disclose increasing a charging voltage for charging the battery when the defined deviation of the first state of charge value from the second state of charge value is exceeded

Kadouchi discloses increasing a charging voltage for charging the battery when the defined deviation of the first state of charge value from the second state of charge value is exceeded (par.[0052]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have modified the teachings of Minamiura by increasing a charging voltage for charging the battery when the defined deviation of the first state of charge value from the second state of charge value is exceeded for advantages such as providing the ability to equalize a battery (par. [0047]), as taught by Kadouchi.

Minamiura in combination with Kadouchi discloses all limitations of the claimed invention except a rest period of the battery following the load period. It would have been obvious to one having ordinary skill in the art at the time of the invention was made have a rest period of the battery following the load period, since it has been held

that a mere reversal of an essential working of a device involves only routine skill in the art.

As for claim 17, Minamiura in combination with Kadouchi discloses all the limitations in the claimed invention except the method is performed in an electrical battery management system. However, this limitation is considered as an intended use and thus further, having the method performed in a system for detecting a performance capacity of the battery doesn't solve any stated problem or is for any particular purpose and it appears that the invention would perform without this intended use.

As for claim 20, Minamiura in combination with Kadouchi discloses all the limitations in the claimed invention except for the deviation is defined as >20%. It would have been obvious to one having ordinary skill in the art at the time of the invention was made for the deviation is defined as >20% , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

**8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minamiura in view of Kadouchi and further in view of Tate, Jr et al,(Tate), (USPATNO. 6,441,586).**

As for claim 12, Minamiura in view of Kodouchi discloses all limitations, but differs from the claimed invention because they do not explicitly disclose determining the estimated open-circuit voltage via an observation device, the observation device including a Kalman filter, the Kalman filter estimating the open-circuit voltage on the basis of a measured battery current using a model describing the battery.



Tate discloses determining the estimated open-circuit voltage (ref's voltage on the terminals) via an observation device, the observation device including a Kalman filter, the Kalman filter estimating the open-circuit voltage on the basis a measured battery current using a model describing the battery.(col.3, lines 58-60 & col.12, lines 17-18)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have modified the combined teachings of Minamiura and Kadouchi by using determining the estimated open-circuit voltage via an observation device, the observation device including a Kalman filter, the Kalman filter estimating the open-circuit voltage on the basis of a measured battery current using a model describing the battery for advantages such as providing the ability to determine the state of charge (col.3, line 35), as taught by Tate.

***Allowable Subject Matter***

9. Claims 11,14,16,18, are 19 allowed.
10. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).
11. The following is a statement of reasons for the indication of allowable subject matter: The best prior art of record, taken alone or in combination thereof, fails to teach: detecting acid stratification by: determining a first state of charge value during a load period of the battery on the basis of an estimated open-circuit voltage, determining a second state of charge value during a rest period of the battery following the load period

on the basis of a measured open-circuit voltage, comparing the first state of charge value to the second state of charge value, and detecting acid stratification when a defined deviation of the first state of charge value from the second state of charge value is exceeded; and assuming the first state of charge value for the rest period when the defined deviation of the first state of charge value from the second state of charge value is exceeded.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARUN WILLIAMS whose telephone number is (571)272-9765. The examiner can normally be reached on Mon - Thurs, 6:30am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/552,859  
Art Unit: 2838

Page 10

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